November 9, 2022

Charles E. Zielinski
State of New Jersey
Department of Environmental Protection
Site Remediation Program
Bureau of Case Management
Mail Code 401-05F
PO Box 420
Trenton, NJ 08625-0420

Re: Bayway Refinery Complex Site Remediation:
Alternative Fill Plan IAOC C1
Bayway Refinery Complex
SRP PI# 008282

Dear Mr. Zielinski:

As per the New Jersey Department of Environmental Protection (NJDEP) approved July 2019 Remedial Action Workplan (RAW) for Investigative Area of Concern (IAOC) C1, ExxonMobil is in the process conducting the approved remedial action for soil, which includes the capping of the landfill. On October 31, 2022, ExxonMobil submitted the IAOC C2 Soil RAW to the NJDEP that proposed the excavation of soil in select areas as part of the remedial action for the IAOC.

As discussed during the NJDEP site visit on November 1, 2022, since excavated soils will be generated from the remedial activities detailed in the IAOC C2 Soil RAW, it is proposed to place the excavated soils in IAOC C1 under the NJDEP-approved landfill cap. As part of the planning for soil disposition options for the soil to be generated from the proposed IAOC C1/C2 Hydraulic Control System subsurface remedial system piping trenching that runs through IAOCs C1, C2, and C3 (including in the vicinity of the some of the proposed excavation areas), forty-one soil samples were collected in 2018 for waste class evaluation (see highlighted boring locations on **Figure 1**). The contaminants of concern (COCs) analyzed above either the NJDEP Residential Direct Contact Soil Remedial Standards (SRS) or Non-Residential Direct Contact SRS were similar in the three IAOCs and consisted of one or more of the following analytical groups: metals, Semi-Volatile Organic Compounds (SVOCs), Extractable Petroleum Hydrocarbons (EPH), and Volatile Organic Compounds (VOCs).

It should be noted that the some of the proposed excavation areas are in the vicinity of the Fire-Fighting Training Pad (FFTP) where Aqueous Film Forming Foam (AFFF), that contained Per-

2 South Gold Drive, Suite A, Hamilton, NJ 08691 p| 609.584.5271 f| 609.584.7498

and Polyfluoroalkyl Substances (PFAS) material, was historically used during the training activities. Results from soil samples collect by Phillip 66 in the area of the FFTP indicate that several of the samples were detected above the 2022 NJDEP Non-Residential and/or Residential SRS for PFAS compounds. While IAOC/site specific Migration to Ground Water SRS have yet to be calculated, it should be noted that this area of the site is classified as Class IIIB aquifer. Additionally, in IAOCs C1/C2/C3, PFAS concentrations have been detected above the NJDEP Class II B Ground Water Quality Standards. Class IIIB standards will be calculated once NJDEP surface water quality standards are established.

Based on Section 5.2 of the NJDEP's Fill Material Guidance for SRP Sites, excavated material from the proposed activities in the IAOC C2 Soil RAW can be placed under the cap in IAOC C1. ExxonMobil's supporting evidence for allowing this to be done are bulleted beneath each requirement.

Pursuant to N.J.A.C. 7:26E -5.2(d)1, the investigator may move alternative fill from a donor AOC to a receiving AOC provided that the individual contaminants present in the donor AOC are also present in the receiving AOC at concentrations above applicable remediation standards. The movement of alternative fill as per the above does not require Department pre-approval. For on-site movement of contaminated soil, consolidation is encouraged as long as it enhances the final remedial action. The Department will allow exceptions to the 75th percentile requirement in this technical guidance and the sampling frequencies in Table 1 in this technical guidance if all four of the following requirements are met:

1. *The consolidation will not result in or increase contamination of ground water at the receiving AOC, as per N.J.A.C. 7:26E-5.1(d)3 (see Section 4.6.2 of this guidance);*
    - The movement of soil will not increase contamination of ground water. Metals, SVOCs, and VOCs have historically been present in the ground water in IAOC C1. Additionally, PFAS compounds are present in the ground water in the Waterfront area of the BRC including IAOCs C1/C2/C3.
    - The soil will be amended to reduce the leachability of the COCs.
    - A low permeability landfill capping system was proposed, and subsequently approved by the NJDEP, in the IAOC C1 July 2019 RAW. This will limit water infiltrating the cap and encountering the material.
    - If water does infiltrate the cap, as proposed in the approved Overburden Ground Water RAW for IAOCs C1 and C2, a hydraulic control system, with PFAS treatment, is being installed to mitigate ground water flow to the adjacent surface water bodies. The hydraulic control system consists of a barrier wall adjacent to the surface water bodies along with a recovery well system.

2. *The consolidation will not result in the mixing of incompatible contaminants or creation of a vapor intrusion pathway at the receiving AOC, as per N.J.A.C. 7:26E-5.1(d)3;*
    - The COCs are not incompatible and there are no buildings on or adjacent to IAOC C1.

KLEINFELDER 2 South Gold Drive, Suite A, Hamilton, NJ 08691 p| 609.584.5271 f| 609.584.7498

3. *The alternative fill being moved shall not contain any hazardous waste, as per N.J.A.C. 7:26E-5.2(f); and*
    - The soil proposed to be moved to IAOC C1 is not classified as hazardous waste.

4. *The alternative fill being moved shall not contain any free liquid waste, as per N.J.A.C. 7:26E-5.2(g).*
    - The soil proposed to be moved to IAOC C1 will not contain any free liquid waste.

Mike Renzulli, LSRP for the ExxonMobil environmental investigation at the Bayway Refinery Complex, has reviewed and approved this proposed plan. Based on the above information, ExxonMobil requests the NJDEP's concurrence with the LSRP's approval to place the proposed soils to be excavated in the IAOC C2 Soil RAW beneath the IAOC C1 NJDEP-approved landfill cap. If you have questions or would like to discuss further, please contact the undersigned.

Respectfully,
KLEINFELDER

Paul C. Lucuski, P.E.
Project Manager

Justin Moses, P.E.
Program Manager

Attachments (1)

cc: Mike Renzulli – LSRP (electronically)
M. Forlenza – EM (electronically)
S. Ferreira – USEPA (electronically)
S. Pushpala – P66 (electronically)
G. Bakun – P66 (electronically)
C. McCardell – Stantec (electronically)

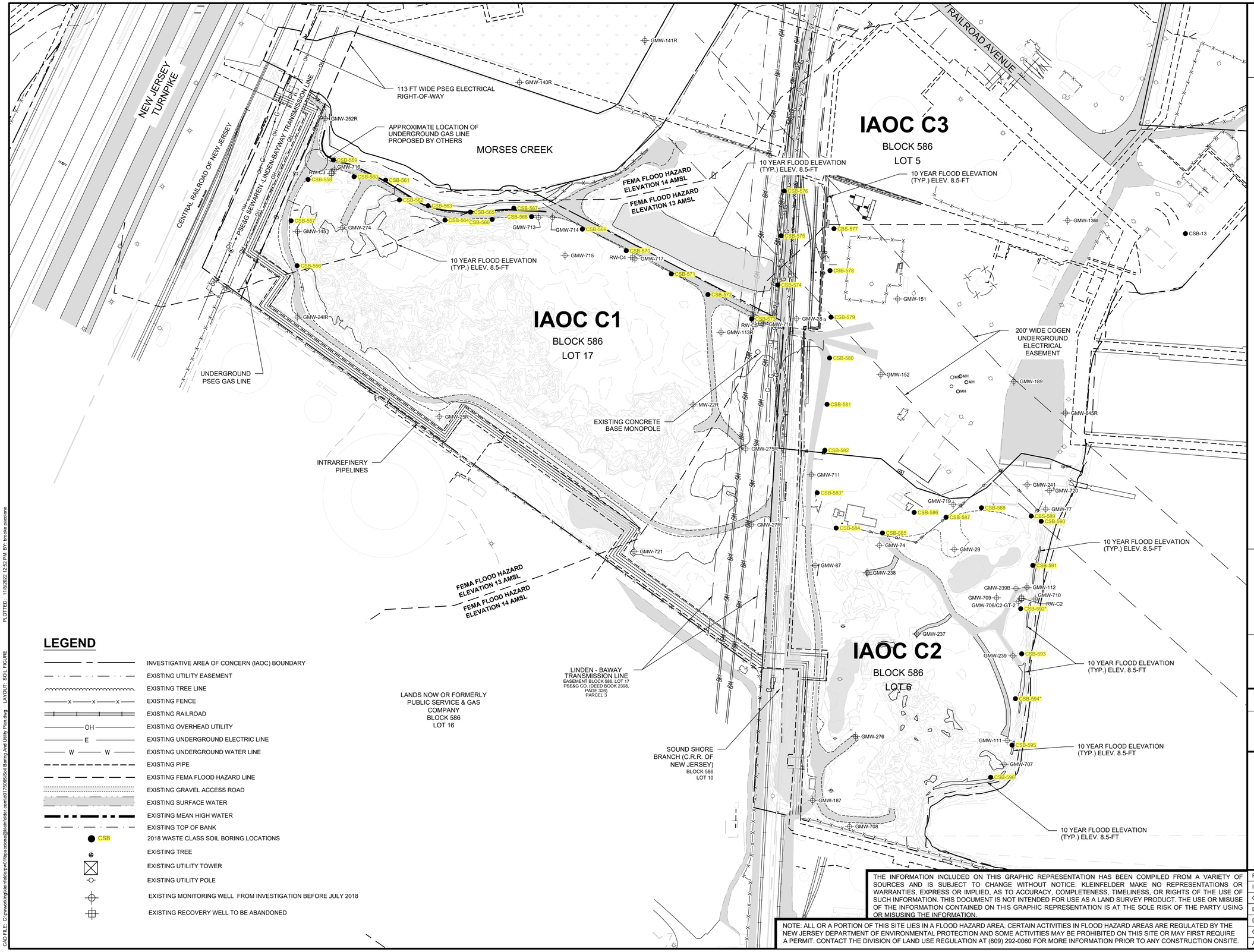
Limitations

Kleinfelder performed the services for this project under the Enabling Agreement with Procurement, a division of ExxonMobil Global Services Company (signed on November 28, 2012). Kleinfelder states that the services performed are consistent with professional standard of care defined as that level of services provided by similar professionals under like circumstances. This report is based on the regulatory standards in effect on the date of the report. It has been produced for the primary benefit of ExxonMobil Global Services Company and its affiliates.

KLEINFELDER 2 South Gold Drive, Suite A, Hamilton, NJ 08691 p| 609.584.5271 f| 609.584.7498

Figure 1

Site Plan



LEGEND

- INVESTIGATIVE AREA OF CONCERN (IAOC) BOUNDARY
- EXISTING UTILITY EASEMENT
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING RAILROAD
- EXISTING OVERHEAD UTILITY
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING UNDERGROUND WATER LINE
- EXISTING PIPE
- EXISTING FEMA FLOOD HAZARD LINE
- EXISTING GRAVEL ACCESS ROAD
- EXISTING SURFACE WATER
- EXISTING MEAN HIGH WATER
- EXISTING TOP OF BANK
- CSB — 2018 WASTE CLASS SOIL BORING LOCATIONS
- EXISTING TREE
- EXISTING UTILITY TOWER
- EXISTING UTILITY POLE
- EXISTING MONITORING WELL FROM INVESTIGATION BEFORE JULY 2018
- EXISTING RECOVERY WELL TO BE ABANDONED

THE INFORMATION INCLUDED ON THIS GRAPHIC REPRESENTATION HAS BEEN COMPILED FROM A VARIETY OF SOURCES AND IS SUBJECT TO CHANGE WITHOUT NOTICE. KLEINFELDER MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, AS TO ACCURACY, COMPLETENESS, TIMELINESS, OR RIGHTS OF THE USE OF SUCH INFORMATION. THIS DOCUMENT IS NOT INTENDED FOR USE AS A LAND SURVEY PRODUCT. THE USE OR MISUSE OF THE INFORMATION CONTAINED ON THIS GRAPHIC REPRESENTATION IS AT THE SOLE RISK OF THE PARTY USING OR MISUSING THE INFORMATION.

NOTE: ALL OR A PORTION OF THIS SITE LIES IN A FLOOD HAZARD AREA. CERTAIN ACTIVITIES IN FLOOD HAZARD AREAS ARE REGULATED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SOME ACTIVITIES MAY BE PROHIBITED ON THIS SITE OR MAY FIRST REQUIRE A PERMIT. CONTACT THE DIVISION OF LAND USE REGULATION AT (609) 292-0060 FOR MORE INFORMATION PRIOR TO ANY CONSTRUCTION ONSITE.

KLEINFELDER
Bright People. Right Solutions.
WWW.KLEINFELDER.COM

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 100 200 300

SCALE: 1" = 100' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

SOIL BORING LOCATION PLAN

IAOC C1 AND C2
BAYWAY REFINERY COMPLEX
LINDEN, NEW JERSEY

PREPARED FOR:

ExxonMobil
Environmental and Property Solutions

PROJECT NO.	20223962
ISSUE DATE	11/08/2022
CURRENT REVISION	-
DESIGNED BY	-
DRAWN BY	BAP
CHECKED BY	PCL
APPROVED BY	-

FIGURE 1

SHEET 1 of 1

CAD FILE: C:\pwworking\kleinfelderpw01\bpaccione@kleinfelder.com\d0175065\Soil Boring And Utility Plan.dwg LAYOUT: SOIL FIGURE PLOTTED: 11/8/2022 12:52 PM BY: brooke paccione